

Name: _____

Diesel Mechanic**Directions:**

Evaluate the student by checking the appropriate number to indicate the degree of competency.

Rating Scale (0-6):

- 0 No Exposure** – no experience/knowledge in this area; program/course did not provide instruction in this area
1 Unsuccessful Attempt – unable to meet knowledge or performance criteria and/or required significant assistance
2 Partial Demonstration – met some of the knowledge or performance criteria with or without minor assistance
3 Knowledge Demonstrated – met knowledge criteria without assistance at least once
4 Performance Demonstrated – met performance criteria without assistance at least once
5 Repetitive Demonstration – met performance and/or knowledge criteria without assistance on multiple occasions
6 Mastered – successfully applied knowledge or skills in this area to solve related problems independently

NOTE:

* = Core competencies (essential for the first day on the job).

0	1	2	3	4	5	6	A. Basic Skills	Notes:
							*1. Operate safely in work place, using safety rules and regulations	
							*2. Inspect work areas for safe work environment	
							*3. Identify and use hand and power tools	
							*4. Use reference books, parts books, and charts	
							*5. Perform basic mathematical calculations	
							6. Perform basic operation of heavy duty, on-highway vehicles	
							7. Perform basic operation of heavy duty, off-highway equipment	
							*8. Identify and select common fasteners/fittings/lines	
							*9. Identify and select common seals and gaskets	
							*10. Use precision measurement tools	
							*11. Perform basic computer operation (e.g., keyboarding, software manipulation, equipment diagnostics, etc.)	
							12. Identify failure analysis of various components	
							*13. Adhere to environmental/regulatory requirements/codes	
							Other:	

0	1	2	3	4	5	6	B. Performing Preventive Maintenance	Notes:
							*1. Demonstrate safety procedures and precautions	
							*2. Evaluate cooling system	
							*3. Check engine lubrication system pressure and level	
							*4. Check air intake and exhaust system	
							*5. Draw lubrication and/or oil sample	

								*6.	Check linkage adjustments	
								*7.	Perform visual inspection per pre-trip or daily list	
								*8.	Replace fuel filters	
								9.	Inspect, adjust, and maintain fifth wheel	
								*10.	Inspect steering linkage for wear	
								*11.	Inspect and adjust brakes	
								12.	Perform air brake system test	
								*13.	Replace water filter	
								*14.	Evaluate oil conditions visually	
								*15.	Replace and inspect oil filter	
								*16.	Change engine oil	
								*17.	Change transmission and/or differential oils	
								*18.	Change power steering fluid	
								*19.	Lubricate chassis components	
								*20.	Replace transmission and/or differential filters	
								Other:		

0	1	2	3	4	5	6	C. Electrical	Notes:
							*1. Demonstrate safety procedures and precautions (e.g., jump starting and welding)	
							*2. Solve problems with basic electricity formulas	
							*3. Perform common diagnostic tests, including DVOM use (digital volt ohmmeter)	
							4. Evaluate test results from common diagnostic tests	
							*5. Interpret diagrams and schematics	
							*6. Remove and replace components (e.g., battery, starter, alternator)	
							*7. Remove and replace associated wiring and/or switches (solenoids/relay/contacts)	
							*8. Use troubleshooting charts	
							Other:	

0	1	2	3	4	5	6	D. Electronics	Notes:
							1. Comprehend basic electronic theory and component operation (e.g., diodes, transistors, receivers)	
							*2. Demonstrate proper use of DVOM (digital volt ohmmeter)	

								4.	Perform diagnostic tests of electronic components (e.g., sensors, senders)	
								5.	Identify circuit problems (e.g., shorted circuit, ground, open circuit)	
								6.	Identify wire and connector maintenance	
								Other:		

0	1	2	3	4	5	6	E.	Welding (optional)	Notes:
							1.	Demonstrate safety procedures and precautions specific to welding	
							2.	Use cutting torch	
							3.	Weld with arc welder in flat position	
							4.	Braze fittings	
							5.	Braze light-gauge material in flat position	
							6.	Weld with gas welder in flat position	
								Other:	

0	1	2	3	4	5	6	F. Fluid Power	Notes:
							*1. Demonstrate safety procedures and precautions specific to fluid power	
							*2. Identify basic hydraulic and pneumatic components	
							*3. Identify basic principles of hydraulics and pneumatics	
							4. Interpret fluid power diagrams, schematics, and ISO symbols	
							5. Test pressures and flow rates using appropriate tooling (e.g., flow meter)	
							Other:	

0	1	2	3	4	5	6	G. Heating and Air Conditioning	Notes:
							*1. Demonstrate safety procedures and precautions specific to air conditioning and refrigeration	
							2. Explain basic heater and AC theory and operation	
							3. Remove and replace heater and air conditioning components	
							4. Acquire appropriate license for mobile refrigerant handling	
							5. Evacuate, reclaim, and charge system per specifications	
							6. Test and adjust climate control temperature sensor systems	
							7. Perform common diagnostic tests of heater and air conditioning systems	
							Other:	

0	1	2	3	4	5	6	H.	Steering and Suspension	Notes:
							*1.	Demonstrate safety procedures and precautions specific to steering and suspension	

								2.	Check and adjust axle alignment	
								*3.	Inspect and service steering-and suspension-related components	
								4.	Inspect and service steering assist components	
								5.	Remove and replace king pin	
								6.	Remove and replace steering and suspension components	
								7.	Inspect, remove, and replace mounted tires	
								Other:		

0	1	2	3	4	5	6	I. Brakes	Notes:
							*1. Demonstrate safety procedures and precautions specific to brakes	
							2. Repair cam, wedge, and disc brakes	
							3. Service hydraulic brake system using schematics	
							4. Inspect brake drum and/or rotors using safety specifications	
							5. Remove and replace spring brake chambers and diaphragms	
							6. Service air brake system using schematics	
							7. Diagnose, remove, and replace brake power-assist components	
							8. Inspect, test, and service anti-lock brake systems	
							9. Inspect, test, and service auxiliary brake system (electric, park, or mechanical)	
							Other:	

0	1	2	3	4	5	6	J. Power Train (On-highway)	Notes:
							*1. Demonstrate safety procedures and precautions specific to power trains	
							*2. Inspect, remove, and replace clutch assembly and flywheel	
							*3. Inspect and adjust clutch free play and linkage	
							*4. Remove and replace transmission (manual and automatic)	
							5. Diagnose and repair automatic transmissions	
							6. Diagnose and repair manual transmissions	
							*7. Replace and adjust wheel bearings	
							*8. Service hubs	
							*9. Remove, adjust, and replace drive line	
							10. Check alignment of drive line (slopes, angles, and phasings)	
							11. Remove and replace differential/power dividers	

								12.	Diagnose and repair differential/power dividers	
								13.	Inspect, test, and service electronic power train control systems	
								Other:		

0	1	2	3	4	5	6	K.	Power Train (Heavy Equipment)	Notes:
							*1.	Demonstrates safety procedures and precautions specific to power trains (heavy equipment)	
							2.	Remove and install transmission	
							3.	Diagnose and repair power shift transmission	
							4.	Diagnose and repair steering clutches and brakes	
							5.	Disassemble and assemble steering clutches and brakes	
							6.	Disassemble and assemble final drive	
							7.	Disassemble and assemble planetary	
							8.	Perform undercarriage component repair and alignment	
							9.	Replace and adjust wheel bearings	
							10.	Remove and install differential	
							11.	Disassemble and assemble differential	
							12.	Perform power train diagnostics	
							13.	Describe operation of torque converters and divider components	
							14.	Describe operation of hydrostatic drive systems	
							15.	Diagnose and repair torque converters and dividers	
							16.	Describe operation of differential steering	
							17.	Troubleshoot power train electronics	
							Other:		

ENGINE DIAGNOSIS AND REPAIR

0	1	2	3	4	5	6	L.	Basic Diesel Engine Components	Notes:
							*1.	Demonstrate safety procedures and precautions specific to engines	
							*2.	Comprehend basic diesel engine theory and configuration	
							*3.	Clean and qualify components	
							*4.	Rebuild or replace accessories	
							*5.	Install exterior components	
							*6.	Evaluate engine performance	

								*7. Remove and install engine	
								Other:	

0	1	2	3	4	5	6	M. Engine Block	Notes:
							*1. Remove and inspect all internal engine components	
							*2. Remove and visually inspect exterior components	
							*3. Install internal engine components	
							4. Inspect/qualify engine block	
							Other:	

0	1	2	3	4	5	6	N. Cylinder Head and Valve Train	Notes:
							*1. Remove and visually inspect cylinder head	
							2. Service/rebuild cylinder heads	
							3. Install camshaft and bushings	
							4. Install cylinder head	
							Other:	

0	1	2	3	4	5	6	O. Air Induction and Exhaust System	Notes:
							*1. Test and/or replace air induction components	
							*2. Test and/or replace exhaust system components	
							3. Rebuild blowers and turbo chargers	
							4. Remove, replace, and inspect blowers and turbo chargers	
							Other:	

0	1	2	3	4	5	6	P. Lubrication System	Notes:
							*1. Test and/or replace oil cooler	
							2. Diagnose and qualify oil pump	
							3. Inspect oil spray jets/piston coolers	
							4. Install oil pump	
							5. Prime and pressurize lubrication system	
							6. Diagnose lubrication system failure	
							Other:	

0	1	2	3	4	5	6	Q. Cooling System	Notes:
							*1. Demonstrate an understanding of basic coolant system theory and operation	

								*2.	Troubleshoot heating/cooling system problems	
								*3.	Replace heating/cooling system components	
								4.	Rebuild cooling system components	
								*5.	Flush heating/cooling system	
								*6.	Inspect fan drive assembly and related hardware	
								*7.	Test and adjust coolant and additives	
								Other:		

0	1	2	3	4	5	6	R.	Fuel System- Mechanical	Notes:
							1.	Test and/or replace injection nozzles and injectors	
							2.	Time fuel injection pump	
							*3.	Identify and install fuel line hoses and connections	
							4.	Remove and install injection pump	
							*5.	Prime and pressurize fuel system	
							Other:		

0	1	2	3	4	5	6	S.	Fuel System- Electronic	Notes:
							1.	Check DTC (diagnostic trouble codes) from on-board computer system utilizing scan tool and technical information; determine needed repairs	
							2.	Inspect and test sensors, controls and actuator components and circuits; adjust or replace as needed	
							3.	Connect computer programming equipment to vehicle/engine; access and change customer parameters; determine needed repairs	
							4.	Remove, inspect, test and reinstall electronic injectors; determine needed repairs	
							5.	Prime and pressurize fuel system	
							Other:		

0	1	2	3	4	5	6	T.	Engine Tuneup	Notes:
							*1.	Adjust intake and exhaust valves according to specifications	
							*2.	Adjust injectors according to specifications	
							*3.	Adjust governor (as applicable)	
							*4.	Set control racks	
							*5.	Adjust compression brake	
							*6.	Adjust valve bridge or crosshead	

								*7. Tuneup an engine (specify type: _____)	
								Other:	

0	1	2	3	4	5	6	U.	Leadership Competencies	Notes:
							1.	Demonstrate understanding of VICA, its structure, and activities	
							2.	Demonstrate understanding of one's personal values	
							3.	Perform tasks related to effective personal management skills	
							4.	Demonstrate interpersonal skills	
							5.	Demonstrate etiquette and courtesy	
							6.	Demonstrate effectiveness in oral and written communication	
							7.	Develop and maintain code of professional ethics	
							8.	Maintain good professional appearance	
							9.	Perform basic tasks related to securing and terminating employment	
							10.	Perform basic parliamentary procedures in group meeting	
								Other:	

0	1	2	3	4	5	6	Areas of Specialization	Notes:
							1.	
							2.	
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							6.	
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							10.	
							Other:	